



**Figure 1.** Generation of DNA methylation patterns during development. Gametic cells have a bimodal pattern of methylation with most regions methylated and CpG islands unmethylated (gray circles). Imprinting centers are methylated in one gamete (pink square), but not the other (white square). Gamete-specific genes (blue ring) are unmethylated. Some genes (triangles) are specifically unmethylated (gray) in one gamete. Almost all methylation in the gametes is erased (gray) in the preimplantation embryo, but imprinting centers retain methylation on one allele (pink square). At the time of implantation, the entire genome gets methylated (pink), with CpG islands being protected (gray circles). Postimplantation, pluripotency genes are de novo methylated (pink diamond). Tissue-specific genes undergo demethylation (yellow in Tissue 1, green in Tissue 2) in their cell type of expression. Imprinting centers remain differentially methylated throughout development. Somatic cell reprogramming by iPS or fusion resets the methylation pattern to the stage of implantation, whereas somatic cell nuclear transplantation (SCNT) resets to the preimplantation state.